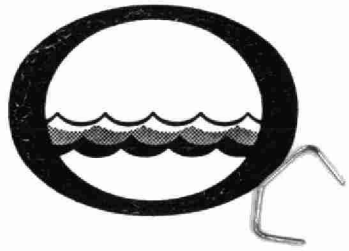
1971 OPERATING SUMMARY

PARRY SOUND

WATER POLLUTION CONTROL PLANT



Water management in Ontario

Ontario
Water Resources
Commission

We are pleased to submit for your consideration a summary of operation during 1971 of the water pollution control plant serving your community.

This operating summary contains parameters normally used to measure plant performance and loading, as well as relevant cost data. Because of the concern over eutrophication of our lakes and of the requirement, in many parts of Ontario, to remove the major contributing factor, results of analysis for phosphorus appear in this summary.

D.S. Caverly,
General Manager.

D.A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

PARRY SOUND

WATER POLLUTION CONTROL PLANT

operated for

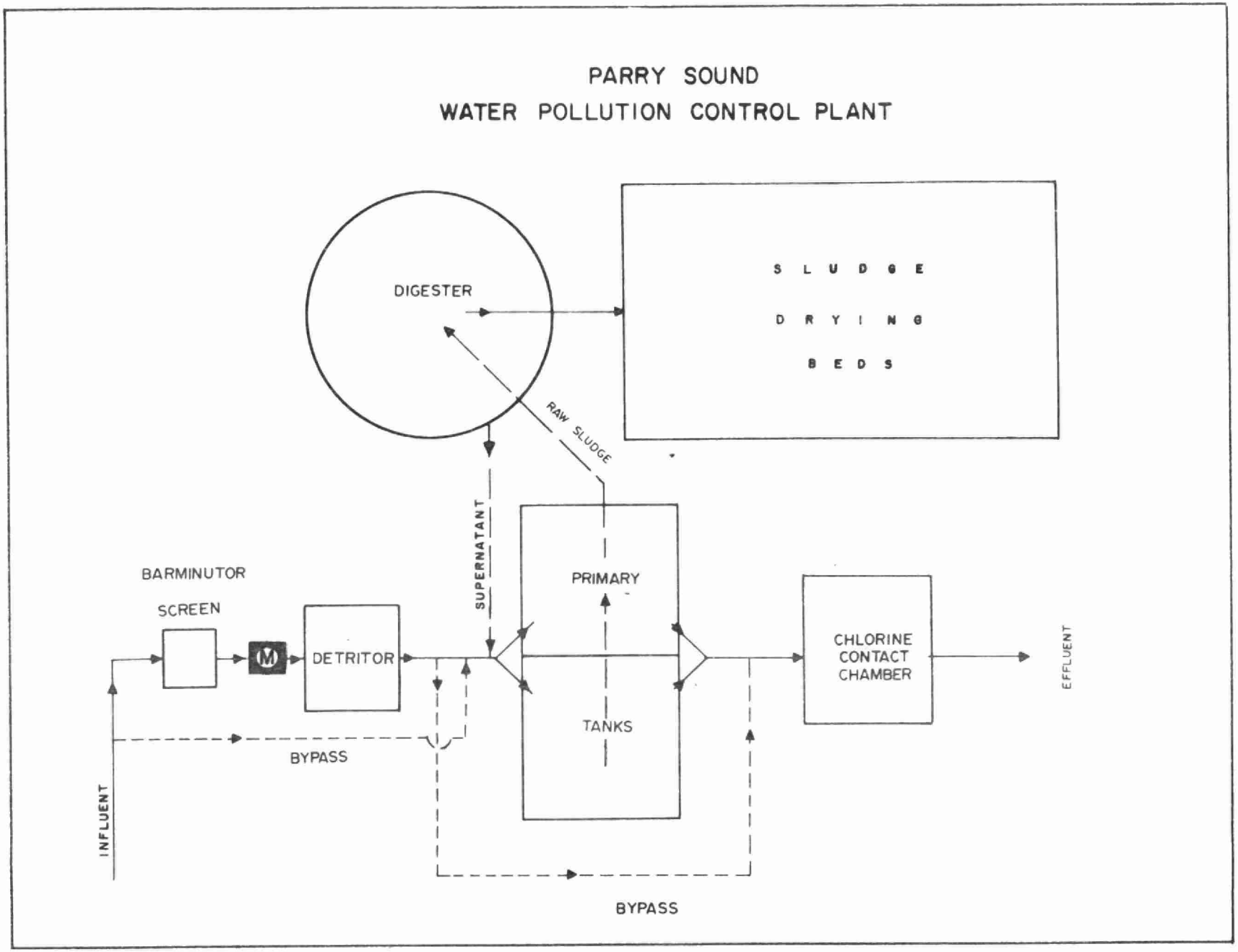
THE TOWN OF PARRY SOUND

by the

ONTARIO WATER RESOURCES COMMISSION

1971 ANNUAL OPERATING SUMMARY

CONTENTS


PARRY SOUND
WATER POLLUTION CONTROL PLANT
DIGESTER
SLUDGE
DRYING
BEDS
RAW SLUDGE
SUPERNATANT
BARMINUTOR
SCREEN
DETRITOR
PRIMARY
TANKS
CHLORINE
CONTACT
CHAMBER
EFFLUENT
BYPASS
INFLUENT
BYPASS

DESIGN DATA

PROJECT NO.	2-0113-62
TREATMENT	Primary
DESIGN FLOW	0.83 mgd
DESIGN POPULATION	7,500
BOD - Raw Sewage	250 mg/l
- Removal	35%
SS - Raw Sewage	200 mg/l
- Removal	35%

PRIMARY TREATMENT

Comminution

Type: Barminutor
Size: One Model C (18")

Grit Removal

Type: Dorr Detritor
Size: One 10 X 10 X $1\frac{1}{4}$'
Retention: 1.35 min

Primary Sedimentation

Type: Dorr
Size: Two 30' x 30' x 10' swd
(112,000 gallons)
Retention: 3.24 hr
Loading: Surface, 460 gal/ft^2/day
Weir, 3700 gal/ft/day

CHLORINATION

Type: W & T, Type A-731
Size: One 200 lb/day

Chlorine Contact Chamber

Size: One $25\frac{1}{2}$ X $8\frac{1}{2}$ X 8'
(11,150 gal)
Retention: 19.2 min

OUTFALL

- to McCurry Lake

SLUDGE HANDLING

Digestion System - single-stage

Type: Dorr draft tubes (2)
Size: One 35' dia x 20' 9" swd
(20,580 cu ft or 138,000 gal)
Loading: 0.85 lb/cu ft/mo

Drying Beds

- Four $76\frac{1}{2}$ X 29'

PUMPING STATIONS

#2 Ejector Station

Type: Smith & Loveless
Size: One 100 gpm @ 135' tdh

#1 Pumping Station

Type: Flygt
Size: Two 40 gpm @ 26' tdh

#7 Pumping Station (Bay St.)

Type: Flygt
Size: One 40 gpm @ 35' tdh

#3 Pumping Station (Hawthorn Cr.)

Type: Flygt
Size: One 50 gpm

#4 Pumping Station (William St.)

Type: Flygt
Size: Two 250 gpm @ 36' tdh

#5 Pumping Station (Cascade St.)

Type: Robert Morse (Weinman)
Size: Two 420 gpm @ 41' tdh

#6 Pumping Station

Type: Robert Morse
Size: Two 860 gpm @ 150' tdh

'71 Review

GENERAL

The project consists of an 0.83 mgd primary treatment plant and nine sewage lift stations, two of which are operated for the Town under an operating agreement. The project is staffed by a chief operator and an operator.

The plant effluent discharged to Georgian Bay, via McCurry Lake and McCurry Creek. During the spring, for a period of two or three weeks after the ice has gone off the lake, strong odours are noted in the proximity of McCurry Lake and McCurry Creek. Intermittent odours are also noted at other times however, are not as strong. A design report to extend and expand the plant to a 1.4 mgd secondary activated sludge plant, and to upgrade pumping stations No. 2 and No. 6 has been received and reviewed. The addition of secondary treatment facilities to the plant will solve the odour problems.

EXPENDITURES

The operating cost for the complete project for the year was $39,360.14. The approximate cost per million gallons treated was $155.00. This compared to $146.18 in 1970, $126.66 in 1969 and $162.39 in 1968.

PLANT FLOWS and CHLORINATION

The average daily flow for the year was 700,000 gallons. The average daily design flow of 830,000 gallons was exceeded 18 percent of the time. A total of 22,000 pounds of chlorine was used during the year, representing an average chlorine dosage of 8.6 mg/l.

PLANT EFFICIENCY

The raw sewage BOD and suspended solids concentrations were respectively 130 mg/l and 185 mg/l. This represented an increase of approximately 5 percent in BOD and 7 percent in suspended solids over the previous year. The final effluent BOD and suspended solids of 64 mg/l and 32 mg/l respectively were similar to last year. The average reduction in BOD was 51 percent and in suspended solids, 32 percent.

A total of 1,073 cubic feet of grit was removed during the year for an average of 4.2 cubic feet per million gallons treated. This compared to figures of 3.8 in 1970 and 4.7 in 1969 and is indicative of combined storm and sanitary sewers.

SLUDGE DIGESTION and DISPOSAL

A total of 249,000 gallons of raw sludge was pumped to the digester and 97,500 gallons of digested sludge removed from the digester to the drying beds. A total of 124 cubic yards of dried sludge was removed from the beds.

The average total solids concentration of the raw sludge was 6.1 percent; the volatile matter concentration, 55 percent. The digested sludge pumped to the drying beds had an average total solids concentration of 7.7 percent of which 45 percent was volatile matter.

CONCLUSIONS

The plant produced a satisfactory effluent for a primary treatment plant. However this was not adequate to prevent odours from developing in McCurry Lake and McCurry Creek.

A design report to extend the treatment facility to provide secondary treatment and to increase the present capacity to 1.3 mgd was received and reviewed. It is anticipated that construction for these works will commence in 1974.

PROJECT COSTS

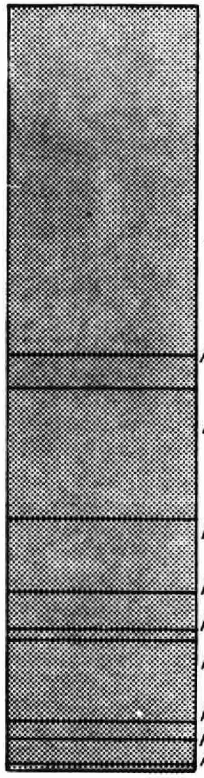
NET CAPITAL COST (Final)	$839,907.73
DEDUCT - Portion financed by CMHC/MDLB (Final)	549,696.21
Long Term Debt to OWRC	$290,211.52
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1971	$ 42,694.79
Net Operating	$ 39,360.14
Debt Retirement	3,485.00
Reserve	3,915.39
Interest Charged	16,266.09
TOTAL	$ 63,026.62

RESERVE ACCOUNT

Balance @ January 1, 1971	$ 25,350.24
Deposited by Municipality	3,915.39
Interest Earned	1,736.38
	$ 31,002.01
Less Expenditures	-
Balance @ December 31, 1971	$ 31,002.01

1971 COSTS

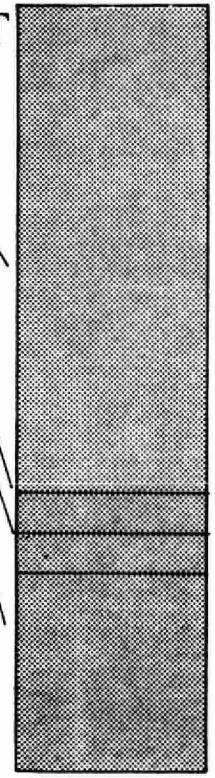
OPERATING COSTS



PAYROLL	46 %
FUEL	4 %
POWER	17 %
CHEMICALS	10 %
GENERAL SUPPLIES	5 %
EQUIPMENT	< 1 %
REPAIRS & MAINTENANCE	10 %
SUNDRY	2 %
WATER	5 %
TRAVEL	< 1 %

TOTAL ANNUAL COST

NET OPERATING	62 %
DEBT RETIREMENT	6 %
RESERVE	6 %
INTEREST	26 %



YEARLY OPERATING COSTS

YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	TREATMENT COSTS	
			$ per million gal	¢ per lb BOD
1967	234.338	$29,843.67	$127.35	24 cents
1968	198.76	32,277.42	162.39	28 cents
1969	260.7	33,021.33	126.66	29 cents
1970	240.90	37.883.25	157.20	21 cents
1971	254.	39,360.14	155.00	21 cents

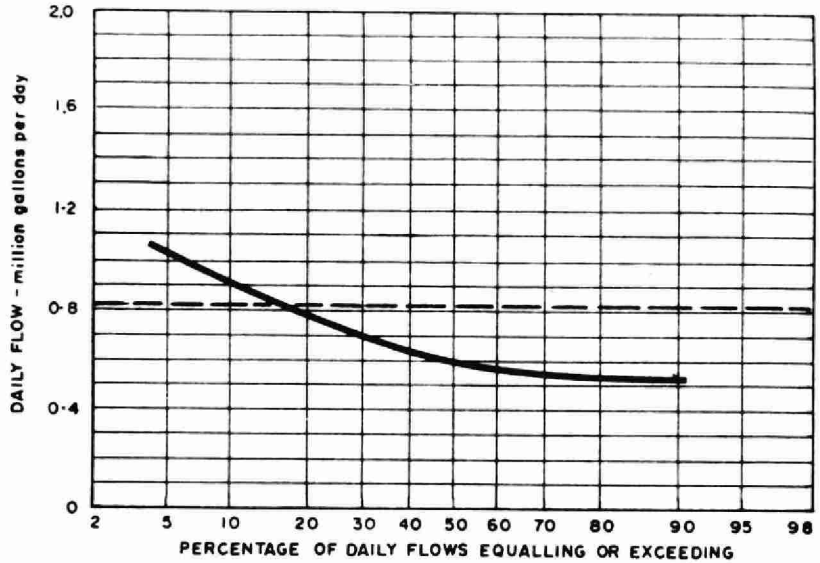
MONTHLY OPERATING COSTS

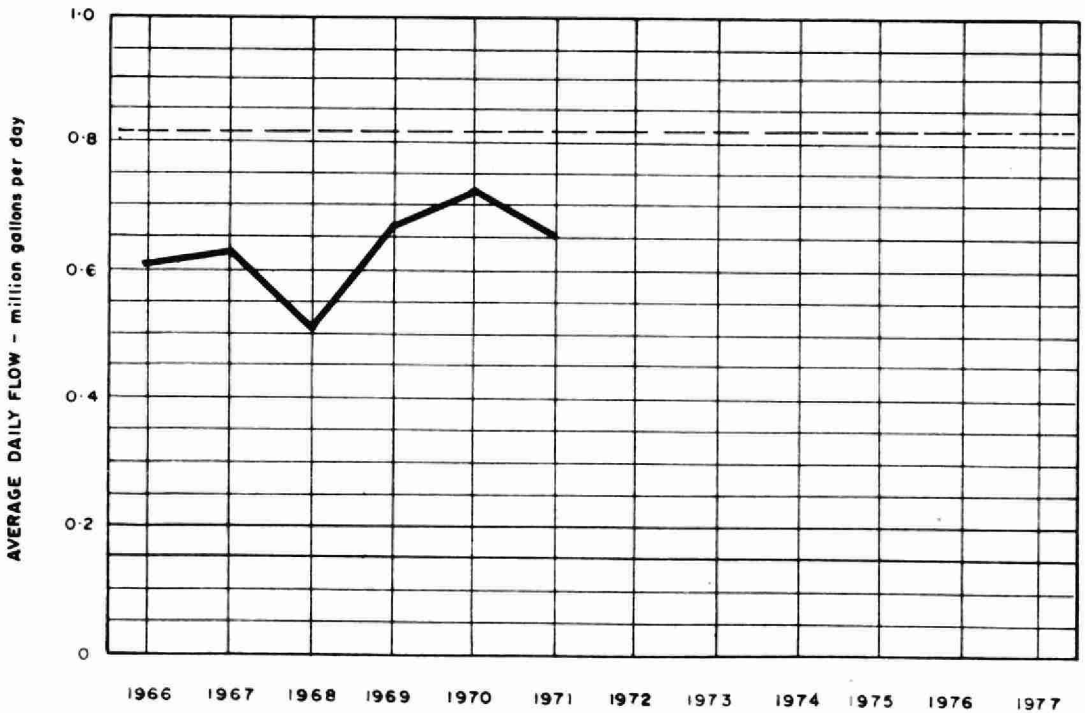
MONTH	TOTAL EXPENDITURE	REGULAR PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY*	WATER	TRAVEL
JAN	1519.34	1184.40	-	-	184.89	-	8.00	-	12.37	-	129.68	-
FEB	3736.76	1663.71	-	280.69	533.10	581.18	209.85	-	254.00	62.15	152.08	-
MAR	3419.05	1123.11	-	280.50	507.59	581.18	156.09	-	589.19	43.68	137.71	-
APR	2371.22	1144.99	-	280.50	552.36	-	87.00	-	156.03	16.83	133.51	-
MAY	2938.48	1174.68	132.38	-	693.85	568.50	160.89	-	35.79	25.93	146.46	-
JUNE	3263.26	1281.66	(132.38)	280.50	661.81	568.50	228.02	-	215.20	9.29	150.66	-
JULY	2772.52	1136.96	300.49	-	579.12	-	139.52	-	360.97	114.95	140.51	-
AUG	2413.47	1256.01	308.63	-	540.70	-	112.48	-	-	47.79	147.86	-
SEPT	3776.17	1262.68	108.71	-	532.00	710.65	132.46	183.46	100.17	592.93	153.11	-
OCT	2692.62	1885.18	-	-	508.08	-	97.05	-	35.61	21.64	145.06	-
NOV	5051.31	2289.21	-	309.33	543.19	(188.78)	115.22	-	1816.68	30.50	135.96	-
DEC	5405.94	2083.62	-	-	1029.25	1137.00	687.77	-	196.43	11.59	194.04	66.24
TOTAL	39360.14	17486.21	717.83	1431.52	6865.94	3958.23	2134.35	183.46	3772.44	977.28	1766.64	66.24

Brackets indicate credit.

PROCESS DATA

FLOWS



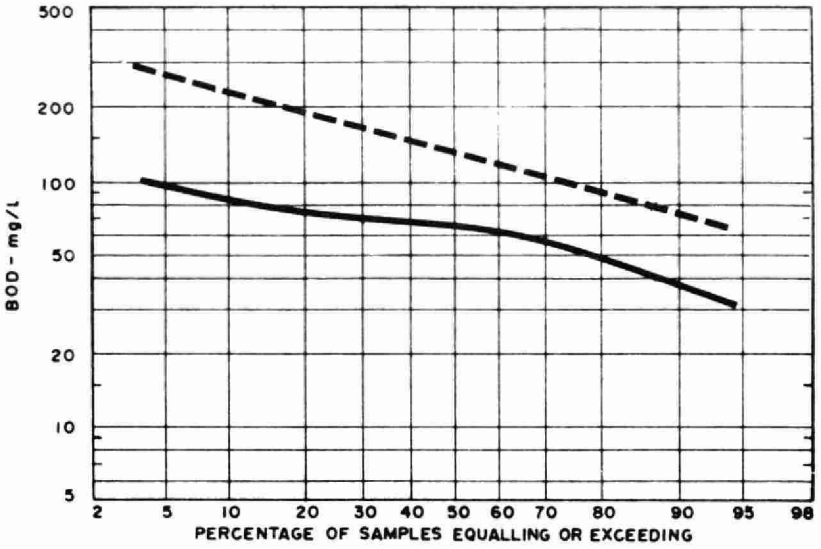


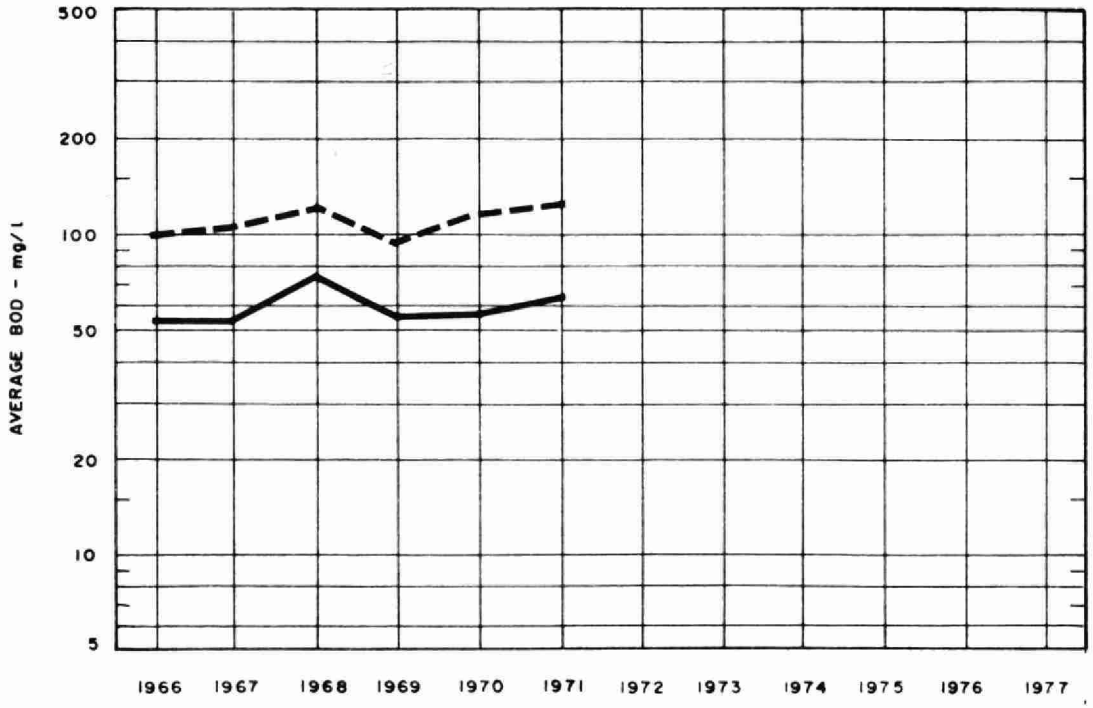
DESIGN CAPACITY _ _ _ _ _ _ _

PLANT PERFORMANCE

MONTH	FLOWS				BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				TOTAL PHOSPHORUS		
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	MAXIMUM RATE	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDN
	million gallons	mil gal	mil gal	mgd	mg/l	mg/l	%	10^3 pounds	mg/l	mg/l	%	10^3 pounds	mg/l as P	mg/l as P	%
JAN	18.	.57	.59	1.0	127	80	36	7.9	175	25	86	26.	-	4.4	-
FEB	17.	.59	.66	1.2	110	75	32	5.8	130	45	65	14.	-	3.8	-
MAR	23.	.75	1.77	2.6	70	49	30	4.9	105	23	78	19.	6.1	3.0	51
APR	40.	1.33	2.20	2.6	100	6	94	37.6	90	5	94	34.	-	1.1	-
MAY	23.	.74	1.26	2.5	147	67	54	18.4	160	28	83	30.	12.0	4.1	66
JUNE	18.	.59	.79	2.6	200	62	69	24.5	460	50	89	73.	9.9	5.0	49
JULY	18.	.57	.86	2.5	200	58	71	25.0	170	25	85	26.	9.2	4.3	53
AUG	18.	.58	.86	2.6	145	63	56	14.6	225	42	81	33.	11.7	5.5	53
SEPT	16.	.54	1.14	2.5	175	80	54	15.3	305	57	81	40.	9.8	5.5	44
OCT	17.	.55	.70	2.4	85	45	47	6.9	102	35	66	11.	9.3	4.4	43
NOV	21.	.71	1.03	2.5	120	70	42	10.7	122	30	75	20.	10.4	4.3	59
DEC	25.	.81	1.30	3.0	100	55	45	11.3	110	20	82	22.	9.0	3.4	62
TOTAL	254.	-	-	-	-	-	-	182.9	-	-	-	348.	-	-	-
AVG.	-	.70	MAXIMUM 2.20	MAXIMUM 3.0	130	64	51	15.2	185	33	82	29.	8.5	4.2	51
No. of Samples	-	-	-	-	23	23	-	-	23	23	-	-	15	23	-

BIOCHEMICAL OXYGEN DEMAND

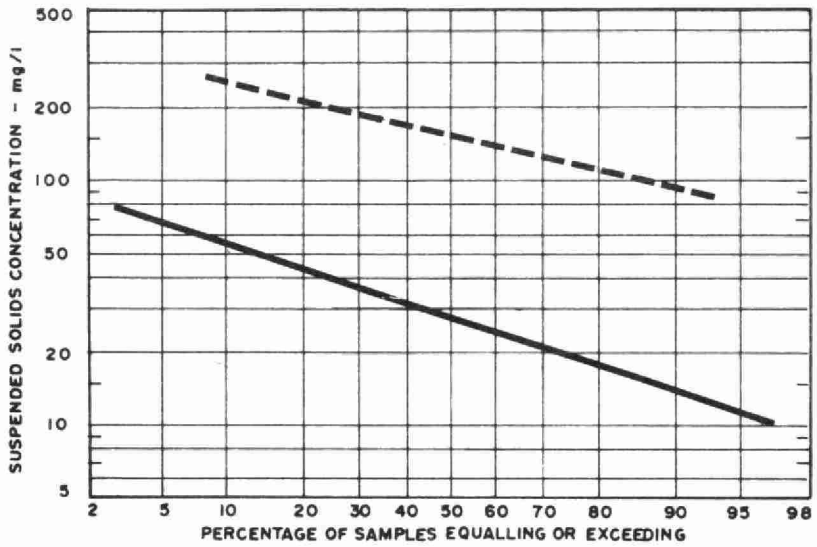


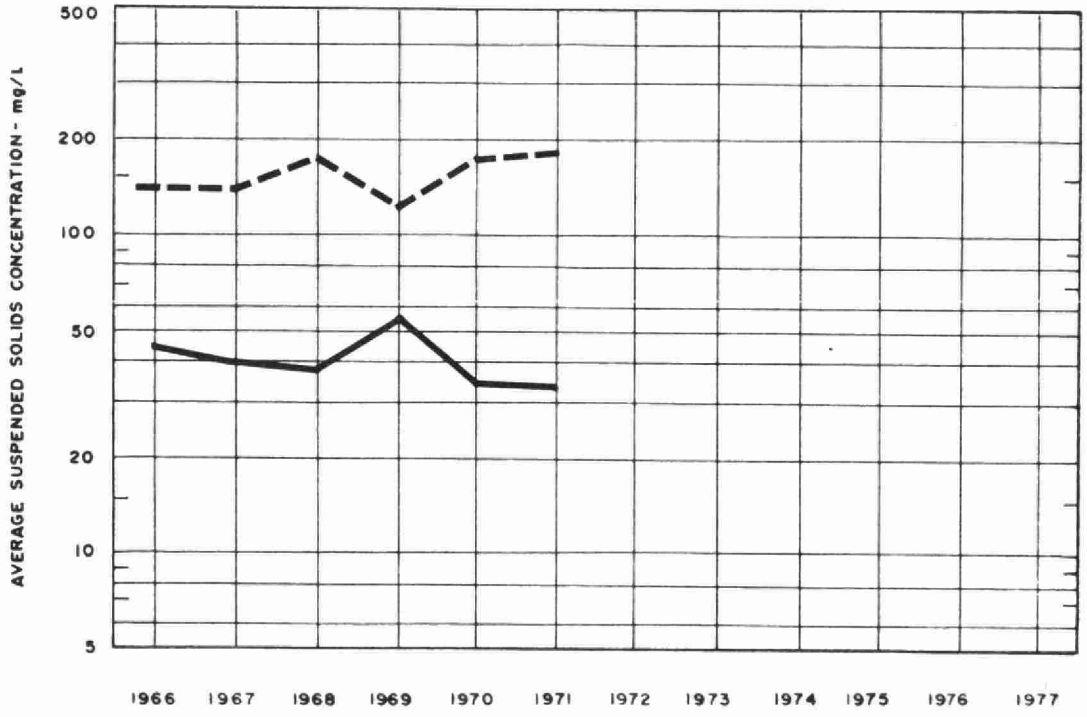


PLANT INFLUENT

PLANT EFFLUENT

SUSPENDED SOLIDS





PLANT INFLUENT

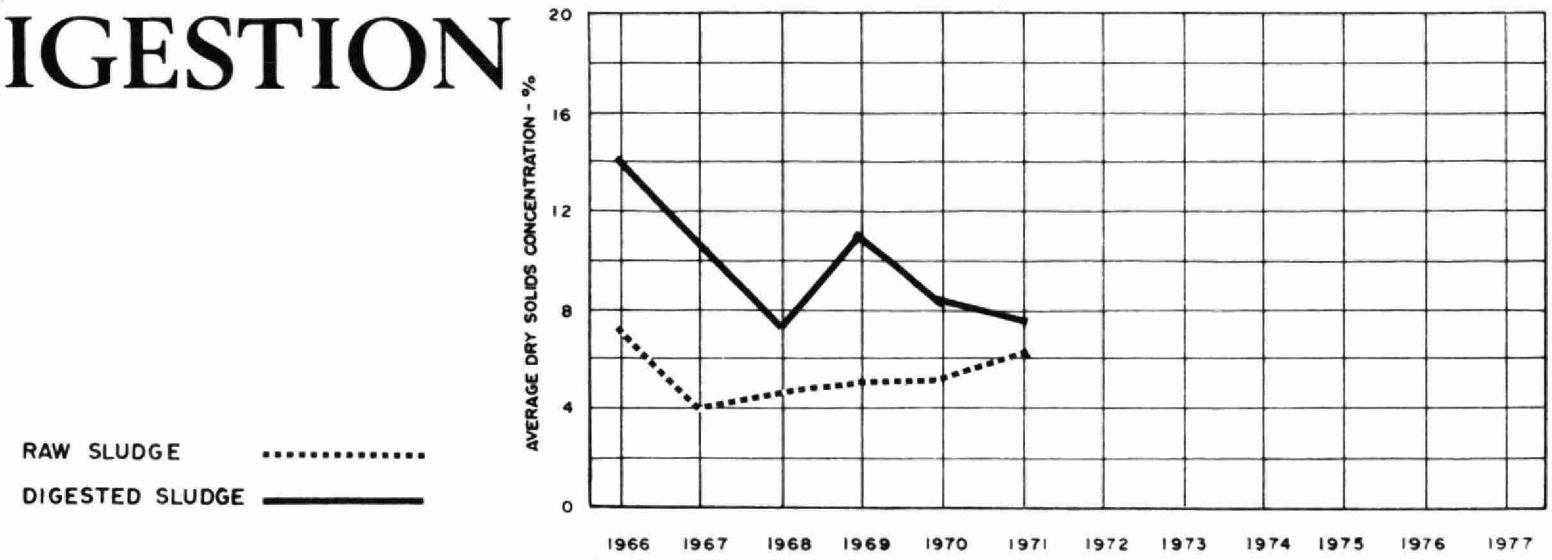
PLANT EFFLUENT

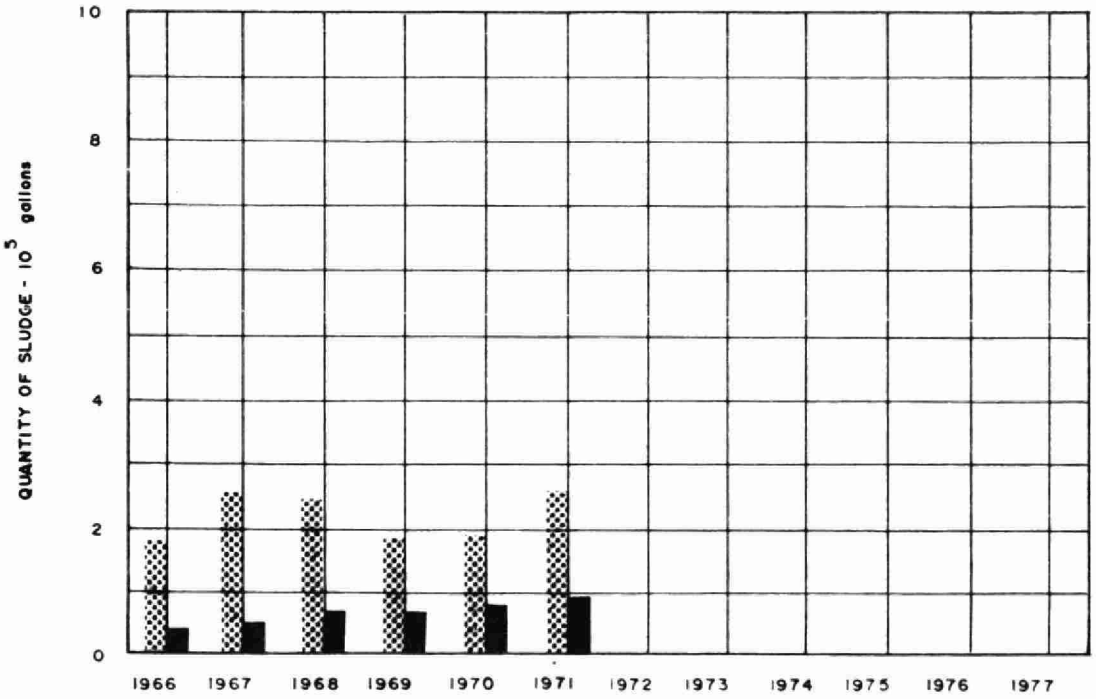
TREATMENT DATA

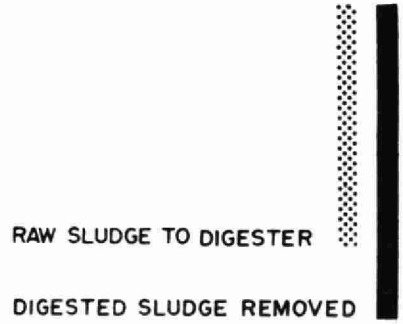
MONTH	GRIT	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
				RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	
	QUANTITY REMOVED cubic feet	CHLORINE USED 10^3 pounds	AVERAGE DOSAGE mg/l	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10^3 gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	SLUDGE * HAULED cubic yards
JAN	12	1.8	10.1	17.	5.0	61	9.5	5.9	43	.4	0
FEB	34	1.6	9.4	16.	4.4	66	5.0	6.5	43	.3	0
MAR	66	1.9	7.9	21.	8.6	46	4.5	10.2	70	.3	0
APR	203	1.8	4.6	22.	4.5	43	8.5	9.4	41	.4	22
MAY	52	1.9	8.1	22.	7.1	45	12.0	9.9	39	.6	54
JUNE	104	1.7	9.6	21.	11.6	42	8.0	9.5	34	.3	10
JULY	100	1.7	9.5	22.	8.7	53	8.0	7.4	41	-	13
AUG	91	1.8	10.1	22.	2.9	55	8.0	8.0	42	.2	10
SEPT	76	1.9	11.8	21.	5.2	68	8.0	6.6	36	1.2	8
OCT	41	1.9	11.2	22.	5.1	62	8.0	8.4	44	.5	7
NOV	148	2.0	9.2	21.	5.3	63	13.0	7.5	47	1.1	0
DEC	146	2.0	8.1	22.	4.3	57	5.0	3.4	55	1.8	0
TOTAL	1073	22.0	-	249.	-	-	97.5	-	-	-	124
AVG.	4.2 cubic feet/mil gal	1.8	8.6	21.	6.1	55	8.1	7.7	45	.6	10

* From Drying Beds

DIGESTION


AVERAGE DRY SOLIDS CONCENTRATION - %
20
16
12
8
4
0
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
RAW SLUDGE
DIGESTED SLUDGE


QUANTITY OF SLUDGE - 10^3 gallons
10
8
6
4
2
0
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977


RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED